

Brewster Water Department

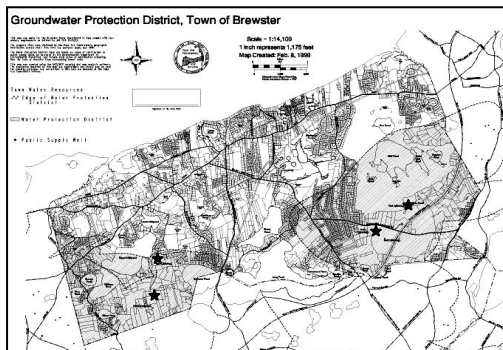
2010 Annual Water Quality Report

Dear Customer: We are pleased to present a summary of the quality of the water provided to you during the past year. The Safe Drinking Water Act (SDWA) requires that utilities issue an annual "Consumer Confidence" report to customers in addition to other notices that may be required by law. This report details where our water comes from, what our tests show about it, and other details you should know about your drinking water. The Brewster Water Department is committed to providing you with the highest quality and most reliable water supply possible. Informed consumers are our best allies in maintaining safe drinking water.

Please read this report carefully. If you have questions about this report, please call 508-896-5454 and ask for Paul Anderson, Superintendent or John Stewart, Water Treatment Operator. The Brewster Water Department Public Water System identification number (**PWS ID#**) is **MA4041000**.

The Brewster Water Department offices are located at 165 Commerce Park Road, Brewster, MA 02631. The phone number is 508-896-5454 and the Fax number is 508-896-4517. You can find out more about the Brewster Water Department on the internet at the Town of Brewster web site, www.town.brewster.ma.us. We encourage public interest and participation in the Brewster Water Department. Water Commissioners' meetings generally occur at 9:00 AM on the first and third Tuesday of each month, at the 165 Commerce Park Road Water Department Office. Meeting notices are posted at the Town Hall and are available at the Water Department office. For up-to-date meeting times and dates, please call the Department. The public is always welcome.

YOUR WATER SOURCE



The shaded area of the map indicates the zoning regulated Groundwater Protection District.

The Town has four groundwater wells pumping water from the Monomoy Lens. The Monomoy Lens is one of the six groundwater lenses that make up the Cape Cod Sole Source Aquifer. Each of the well sites has large Town owned tracts of land surrounding them for water quality protection. Activity is restricted to passive recreation on Town wellfield acreage.

Wells #1 & #2, located near Route 6, south of Freeman's Way, were constructed in 1971 and are about 76 feet deep. Well #3, near Route 6, north of Freeman's Way, was built in 1986 and is about 90 feet deep. Well #4, at the north edge of the Punkhorn Parklands, off Run Hill Road, was built in 1991 and is about 101 feet deep. A fifth site in the southern Punkhorn area has been permitted by the State in 2007 and is in the process of development. The Town treats the water for corrosion control and to remove iron and manganese. See page 5 & 6 for more about our treatment facilities.

SOURCE WATER ASSESSMENT and PROTECTION (SWAP) REPORT

A Source Water Assessment was completed in Brewster in 2003 by members of the Department of Environmental Protection (**DEP**), Drinking Water Program (**DWP**). A Source Water Assessment and Protection (**SWAP**) Report has been issued and contains an evaluation of the land uses, environmental vulnerabilities and protection measures around the wellfield areas of the Town. This report rates the susceptibility of the well sources, and gives recommendations for improvement in aquifer protection and other areas that affect groundwater quality.

The susceptibility of the Town's wells, as determined during the Assessment, is as follows: Wells # 1-3, High; Well #4, Moderate. While these assessments are serious, the reason for the determination is the lack of underground or geological formations, such as a clay layer, that would create a hydrological barrier to possible contamination. This is not a new issue for a good part of Cape Cod, due to the sand and gravel make-up of the Cape. The Town has wellhead protection regulations and a Groundwater Protection District in place to oversee land use within that District.

The report cites land uses in Brewster's Zone II areas, as "dominated with forest with smaller areas of residential use (approximately 7%) and a very small percentage of commercial and industrial land use." There are recommendations for further action and planning in each area of the report. Some of the recommendations include land acquisition, additional monitoring, public education and outreach for source protection and storage, handling and disposal of hazardous materials.

Residents can help protect our water quality by practicing good septic system maintenance and properly disposing of household hazardous waste through Brewster's Hazardous Waste Collection Program. Contact the Brewster Health Department (508-896-3701, ext. 120) or the Brewster Water Department (508-896-5454) for information on these topics. The report is available for viewing at the Commerce Park Road Water Department offices and a copy has been placed at the Brewster Ladies Library. The Department is also placing the scanned report on the Department web page of the Town's website, www.town.brewster.ma.us

Brewster Water Quality Data Table

Compiled January 29, 2011, for the reporting period of **January 1st to December 31st, 2010.**

Key – definitions to abbreviations used below are found on page #3.

| Lead and Copper | | | | | | | | |
|--|-----------------|-------|-----------------------------|-------------------|-------------|-------------|---|---------------|
| Contaminant | # Sites Sampled | Unit | 90 th Percentile | # Sites Exceed AL | MCL (AL) | MCLG | Possible Source of Contamination | Violation Y/N |
| Lead ¹ Date Taken 7/22 & 9/17/2008 | 30 | ppb | 8.1 | 1 | AL=15 | 0 | Corrosion of household plumbing systems; Erosion of natural deposits. | NO |
| Copper Date Taken 7/22 & 9/17/2008 | 30 | ppm | .31 | 0 | AL=1.3 | 1.3 | Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives. | NO |
| Radioactive Contaminants | | | | | | | | |
| Contaminant | Date Tested | Unit | MCL | MCLG | Level Found | Range | Major Sources | Violation Y/N |
| Radium 226 | 9/24/03* | pCi/L | 5 pCi/L | 0 | 0.2+/-0.3 | | Erosion of natural deposits | NO |
| Volatile Organic Contaminants | | | | | | | | |
| Contaminant | Date Tested | Unit | MCL | MCLG | Level Found | Range | Major Sources | Violation Y/N |
| Tetrachloro-ethylene ² | 3/10/10 | ppb | 5 | 0 | 1.7 | ND – 1.7 | Leaching from vinyl lined pipes. See additional information below this table. | NO |
| Inorganic Contaminants | | | | | | | | |
| Contaminant | Date Tested | Unit | MCL | MCLG | Level Found | Range | Major Sources | Violation Y/N |
| Nitrate | 2/22/10 | ppm | 10 | 10 | 0.18 | 0.13 – 0.18 | Runoff from fertilizer use; Leaching from septic tanks, sewage; erosion of natural deposits. | NO |

| Disinfectants/Disinfection Byproducts | | | | | | | | |
|---------------------------------------|--|------|------|-------|----------------------|-------------|---|---------------|
| Contaminant | Date Tested | Unit | MRDL | MRDLG | Results ³ | Range | Major Sources | Violation Y/N |
| Total Trihalo-methanes (TTHMs) | 2/22/10 5/24/10 8/5/10 11/15/10 | ppb | 80 | n/a | 6.2 | 1.7 – 14 | By-product of drinking water chlorination | NO |
| Haloacetic Acids (HAA5) | 2/22/10 5/24/10 8/5/10 11/15/10 | ppb | 60 | n/a | 1.51 | ND – 3.4 | By-product of drinking water chlorination | NO |
| Chlorine (Free) | Monthly 2010 | ppm | 4.0 | 4.0 | 0.38 | 0.08 – 0.43 | Water additive used to control microbes | n/a |

| Unregulated Contaminants | | | | | | | | |
|--------------------------|-------------|------|-------|-------|--------------------|----------------|--|---------------|
| Contaminant | Date Tested | Unit | SMCL | ORSG | Result or Detected | Range | Possible Source | Violation Y/N |
| Sodium | 2/24/10 | ppm | n/a** | 20 | 13 | 9.9-13 | Natural sources; runoff from use as salt on roadways; by-product of treatment process Wells #1-3 Well #4 | n/a |
| Sulfate | 2/24/10 | ppm | 250 | ---- | 10 | 5.3–10 | Natural sources | n/a |
| Chloroform | 2/22/10 | ppb | n/a** | n/a** | 2.8 total | 0.63-2.8 total | Naturally present in the environment. Also analyzed for in TTHMs | n/a |

Water-Quality Table Footnotes

1. See paragraph on this contaminant on page 4.
 2. See paragraph on this contaminant on page 5.
 3. This **Results** column represents the highest concentration upon which the system's compliance is based, not necessarily the highest concentration found.
- * Data presented is from the most recent testing done in accordance with the regulations. Most of the data presented in this table is from the reporting year. We monitor for some contaminants less than once per year, under DEP reduced

monitoring requirements, because concentrations for those contaminants are not expected to vary significantly from year to year. As a result, some of our data, though representative, is more than a year old. For those contaminants, the date of the last sample is shown in the table.

** Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.

WATER QUALITY DATA TABLE AND DEFINITIONS

The water quality information presented in the table is from the most recent round of testing done in accordance with State and Federal regulations. All data shown is based upon tests conducted in the year 2010 unless otherwise noted in the table. The Department of Environmental Protection (DEP) has granted the Brewster Water Department reduced monitoring requirements for Synthetic Organic Contaminants (SOC) and Inorganic Contaminants (IOC) because the sources have shown not to be at risk for contamination. The last full sampling for IOC was in 2003 and in 2004 for SOC. Samples were found to be free of these contaminants.

DEFINITIONS

Maximum Contaminant Level or MCL: The highest level of a contaminant in drinking water. MCLs are set as close to the MCLGs (see below) as feasible using the best available treatment technology.

Maximum Contaminant Level Goal or MCLG: The level of a contaminant in drinking water below, which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Action Level (AL) - The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.

Parts per million (ppm) or Milligrams per liter (mg/L) - One part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter (µg/L) - One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

PicoCuries per liter (pCi/L) - PicoCuries per liter is a measure of the radioactivity in water.

Maximum Residual Disinfectant Level (MRDL) -- The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) -- The level of a drinking water disinfectant (chlorine, chloramines, chlorine dioxide) below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Non-Detects (ND) - Laboratory analysis indicates that the constituent is not present.

Treatment Technique (TT) – A required process intended to reduce the level of a contaminant in drinking water.

90th Percentile: Out of every 10 homes, 9 were at or below this level.

Secondary Maximum Contaminant Level (SMCL) These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

Massachusetts Office of Research and Standards Guideline (ORSG) This is the concentration of a chemical in drinking water, at or below, which adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.



What does all this mean? This report shows our water quality and what it means. The Brewster Water Department routinely monitors for contaminants in your drinking water according to Federal and State laws. We have learned through our monitoring and testing that some contaminants have been detected. The Department takes hundreds of samples for over 100 contaminants in our drinking water. Space does not allow listing all constituents here. All regulated or unregulated contaminants with sampling requirements that do not appear in the Water Quality Data Table were reported as “below the detection limit” or non-detectable (ND). A complete listing of all sampling results is available at the Water Department Office, 165 Commerce Park Road, Brewster, MA 02631.

IMPORTANT INFORMATION

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the **Safe Drinking Water Hotline, 1-800-426-4791**.

Environmental
Protection
Agency
Drinking Water
Hotline
1-800-426-4791

In order to ensure that tap water is safe to drink, the Department of Environmental Protection (DEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's **Safe Drinking Water Hotline, 1-800-426-4791**.

ADDITIONAL HEALTH INFORMATION

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming.

Pesticides and herbicides, may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants can be naturally occurring or be the result of oil and gas production and mining activities.

Maximum Contaminant Levels: (MCL's) are set at very stringent levels. The EPA has determined that your water IS SAFE at these levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

Total Coliform detections:

No maximum contaminant levels or other health standards were exceeded in any month in 2010. The Department took 498 bacteria samples in 2010 at representative locations throughout the town at regular intervals to monitor this aspect of water quality; 300 samples are required by regulation.

Lead: If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Brewster Water Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Tetrachloroethylene: Detections occur where vinyl lined water mains were installed in the 1970's. Vinyl-lined, asbestos-cement pipe was used in a number of subdivisions until the compound was detected in 1979. Brewster, along with other Massachusetts towns with similar piping, flushes and monitors under a DEP approved program to deal with the problem. There are 6.3 miles of the affected pipe in Brewster's 126 mile water distribution system. All locations have bleeders to control the level of the contaminant. The samples are taken after the last service on each street. This gives the "worst case scenario" for contaminant concentration. Most homes served by these pipes should be well below reported levels. For specific area sample results, please call the Brewster Water Department.

The following locations are served by affected pipe and had detections in ranges noted in the data table, page 2: Ambergris Circle-East, Gages Way-North, Highridge Road, Nathan's Pasture Way, Puritan Drive, Stonehenge Drive.

The following streets had non-detectable results: Ambergris Circle-West, Bluefish Lane, Bog Pond Road, Bridle Path Road, Camelot Lane, Canoe Pond Drive, Carriage Drive, Cherrywood Lane, Damon Road, Derrick Road, Donahue Road, Evelyn's Drive, Great Fields Road-from Pine Bluff Road north to end of the water main, Harmony Lane, Horse Way, Indian Trail, Jackson Road, John Wings Lane, Linda Circle, Oakwood Road, Pasture Way, Pleasant Court, Salt Hole Lane, Salt Works Road, Sand Bar Lane, Wagon Wheel Lane, Whiffletree Avenue, Wildwood Road, Woodstock Drive, Wynn Way.

Unregulated contaminants: Those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.

Sodium: Sodium-sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the sodium levels where exposures are being carefully controlled.

As a requirement of Mass Highway low salting program for Route 6, the Water Department performs a monthly analysis for sodium, calcium, chloride and specific conductance. The highest level of sodium detected in this non-regulatory analysis for 2010 was 13 ppm at Well #2 in February.

The range for this monthly sodium sampling wells #1-3 for 2010 was 9.9-13 ppm.

Total Trihalomethanes (TTHM): Some people who drink water containing trihalomethanes in excess of the MCL over many years experience problems with their liver, kidneys, or central nervous systems, and may have increased risk of getting cancer. Brewster did not exceed the MCL for these contaminants. The only Volatile Organic Compound detected and reported this year is Chloroform, naturally occurring in most Cape Cod groundwaters.

Haloacetic Acids(HAA5): Some people who drink water containing haloacetic acids in excess of the MCL over many years may have increased risk of getting cancer. Brewster did not exceed the MCL for these contaminants.

WATER TREATMENT

Iron & Manganese Removal (oxidation and filtration)

Iron and manganese are often present in groundwater at levels that can discolor the water or cause it to take on unpleasant odors or tastes. Even though the water may still be safe to drink, it is preferable that the iron and manganese be removed.

The Greensand Filtration Facility is designed to remove iron and manganese pumped from Well #4, located off Run Hill Road. Treatment includes the use of **sodium hypochlorite**, a liquid chlorine solution, for oxidation of the minerals. This causes the iron and manganese to form tiny particles. Once this happens, the water passes through special filters consisting of material that is specifically designed to capture iron and manganese particles. Over time, filters start to clog and need to be cleaned using a high-flow backwash process.

Sodium hypochlorite is also used as a disinfectant required for water filtration processes treating the finished water to a concentration of 0.2 to 0.6 ppm free chlorine. **Potassium permanganate** is used periodically to activate the filter media when regeneration is necessary.

Corrosion Control through pH Adjustment

Many drinking water sources in New England are naturally corrosive (i.e. they have a pH of less than 7.0). So, the water they supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason it is beneficial to add chemicals that make the water neutral or slightly alkaline. This is accomplished by adding any one or a combination of several approved chemicals. The Brewster Water Department adds **hydrated lime** at two **Lime Treatment Facilities** located near Wells #1 & 2, and Well #3. **Potassium hydroxide** is used in place of hydrated lime at Well #4, for pH adjustment and corrosion control of this water source. Testing throughout the system has shown that this treatment has been effective at reducing the lead and copper concentrations.

Sodium hypochlorite, also added to the water at these facilities, as a preventative disinfectant, during system flushing. This chemical is added at a concentration of approximately 0.6 ppm free chlorine for approximately 6 weeks each spring and fall and in the summer as needed to ensure safe drinking water.

All chemicals used for treatment are approved for water treatment by one of the following organizations: National Sanitation Foundation (Now known as NSF International), or UL, both accredited by the American National Standards Institute (ANSI). The chemicals also meet performance standards established by the American Water Works Association.

THIS REPORT

This report was prepared using information and material supplied by The Department of Environmental Protection, National Rural Water Association and New England Water Works Association. As a regulatory requirement, much of the form,

information and language is mandated. We would appreciate it if you would let us know if you found the report readable and understandable. Any helpful comments will be appreciated. We will do our best to improve what can be adjusted or modified. We are always happy to answer any questions about the Brewster Water Department and our water quality. For information, call 508-896-5454. Also visit the Town of Brewster web site at: www.town.brewster.ma.us for general and Department specific information. We're proud of the quality of your drinking water. The water quality meets all Federal and State requirements.

Should you, as a Brewster Water consumer, or someone you know have difficulties with sight or understanding English, please contact this office and we will make arrangements to have the report read or translated.

REPORT COST

This report has taken approximately thirty five labor hours to prepare and \$0.22 (twenty two cents) each to print. In an effort to minimize costs, our primary distribution method will be with the water bills. Additional effort will be made to distribute this information to those consumers who do not receive water bills. This will include notice of availability by newspaper, cable and radio, and distribution to condominiums and the Brewster Tourist Information Center. The information will also be available at the Water Department Office, the Brewster Town Hall and on the internet at www.town.brewster.ma.us. Once at the main Brewster Town page, go to Town Departments, Water Department, Water Quality Report.

OPERATIONS

The Commonwealth of Massachusetts has very specific laws requiring licensed Drinking Water Supply Operators for water systems providing drinking water to the public. This certification is obtained by passing tests and meeting experience and training requirements. Operators must also complete continuing education requirements to retain this license. Brewster currently has ten staff members with varied levels of Drinking Water Supply Facilities Operator Certificates. The employees of the Brewster Water Department work diligently to provide top quality water to every consumers' tap. We ask everyone's help in conserving and protecting our water resources. **Thank you!**

Hazardous Waste Collection 2011

The tri-town hazardous waste collection program, which also includes the towns of Harwich and Chatham, will continue for 2011. The tentative Saturday collection dates for this year are: **May 8th, June 12th, July 10th, August 7th, September 11th, and October 9th.**

Collections are from 9 AM to 12 Noon at the Harwich Transfer Station, 209 Queen Anne Road. There is no fee for residents and taxpayers of participating towns. Thanks to the Town of Harwich and Harwich Transfer Station staff for hosting this great activity!! For more info call Brewster Health Department (508-896-3701, ext. 120).

2011 Summer Annual Voluntary Irrigation Restriction Schedule

June 15th through Labor Day:

Residential: Even numbered houses water on even numbered days. Odd numbered houses water on odd numbered days. **Commercial, Condominium and Municipal:** Assigned odd or even in writing by the Water Dept.

This is not a directive to water every other day. When irrigation is needed, please follow the voluntary schedule above.

Lawn irrigation is a significant part of our water demand during the summer months. Proper irrigation techniques conserve water and save you money. There are a number of easy steps to take that will help control water use. If you have an automatic lawn sprinkler system make sure it has a moisture sensor that is working to avoid unnecessary watering. Use a rain gauge or cat food can to monitor the amount of water you are applying to the lawn. A good soaking once or twice a week totaling about an inch of water should be sufficient. Adjust your watering if necessary to achieve this goal. Cut the lawn higher to promote deeper roots and to help prevent weeds. Keeping mower blades sharp limits grass blade damage which leads to disease and stress. A healthy grass needs less water!!